This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a minor, municipal permit. The discharge results from the operation of a 0.060 MGD wastewater treatment plant with an expansion flow tier of 0.165 MGD. This permit action consists of updating the effluent limitations to reflect the current Virginia Water Quality Standards, effective 6 January 2011, and current agency permit language, as applicable. The effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of 9VAC25-260-00 et seq.

1.	Facility Name and Mailing Address:	Raspberry Falls Water Reclamation Facility P.O. Box 4000 Ashburn, VA 20146	SIC Code:	4952 WWTP
	Facility Location:	16316 Limestone Court Leesburg, VA 20176	County:	Loudoun
	Facility Contact Name:	Dale Hammes	Telephone Number:	571-291-7700
2.	Permit No.:	VA0088196	Expiration Date:	19 January 2010
	Other VPDES Permits:	Not Applicable		
	Other Permits:	Not Applicable		
	E2/E3/E4 Status:	Not Applicable		
3.	Owner Name:	Loudoun County Sanitation Authority		
	Owner Contact/Title:	Dale Hammes / General Manager	Telephone Number:	571-291-7700
4.	Application Complete Date:	16 December 2009		
	Permit Drafted By:	Douglas Frasier	Date Drafted:	22 June 2010
			Revision:	26 October 2010
			Revision:	13 December 2010
			Revision:	17 February 2011
			Revision:	18 August 2011
			Revision:	15 September 2011
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	25 June 2010
	WPM Permit Reviewed By:	Bryant Thomas	Date Reviewed:	18 February 2011
			Date Reviewed:	24 August 2011
			Date Reviewed:	17 October 2011
	Public Comment Period:	Start Date: TBD 2011	End Date:	TBD 2011
5.	Receiving Waters Information:	See **Attachment 1** for the Flow Frequency Determination.		
	Receiving Stream Name:	Limestone Branch	Stream Code:	1aLIM
	Drainage Area at Outfall:	1.7 square miles	River Mile:	2.2
	Stream Basin:	Potomac River	Subbasin:	Potomac River
	Section:	8	Stream Class:	III
	Special Standards:	PWS	Waterbody ID:	VAN-A03R
	7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
	1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
	30Q10 Low Flow:	0.0 MGD	30Q10 Flow:	0.0 MGD
	Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD
	303(d) Listed:	Yes – bacteria		
	TMDL Approved:	Yes – bacteria	Date TMDL Approved:	6 July 2004

6. **Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:**

✓	State Water Control Law		EPA Guidelines
✓	Clean Water Act	✓	Water Quality Standards
✓	VPDES Permit Regulation		Other:
✓	EPA NPDES Regulation		

7. **Licensed Operator Requirements:** Class III at the 0.060 MGD design flow.
Class II at the 0.165 MGD design flow.

8. **Reliability Class:** Class I at both design flows.

9. **Permit Characterization:**

	Private	✓	Effluent Limited	Possible Interstate Effect
	Federal	✓	Water Quality Limited	Compliance Schedule Required
	State		Toxics Monitoring Program Required	Interim Limits in Permit
✓	POTW		Pretreatment Program Required	Interim Limits in Other Document
✓	TMDL			

10. **Wastewater Sources, Treatment Description and Relevant Information:**

The Raspberry Falls facility is located in the Plains of Raspberry residential and golf course community off Route 15, approximately 3 miles north of the Town of Leesburg. The development currently consists of approximately 125 single family homes, an 18-hole golf course with a clubhouse and the Raspberry Inn which holds corporate and special events. Complete build out will eventually be 180 single family homes.

This permit also contains an expanded flow tier of 0.165 MGD to accommodate the additional flow to be received from the Selma Estates development. This development, located immediately north of Raspberry Falls, consists of approximately 15 single family homes with an ultimate build out of 280 homes.

Wastewater flows via gravity to the Influent Wet Well where grinder pumps shred large solids prior to being pumped to one of two Sequencing Batch Reactors (SBRs). The supernatant from the SBRs flows to the aerated Post Equalization Basin and then to the Tertiary Filter System comprised of anthracite, sand and gravel. The filtered water is then disinfected via ultraviolet (UV) prior to discharging into Limestone Branch.

The expanded facility will be an Intermittent Cycle Extended Aeration (ICEAS) process unit (advanced SBR technology); followed by filtration and UV disinfection. The new plant will be located adjacent to the current Raspberry facility.

The Certificate to Construct (CTC) for the 0.165 MGD facility was issued by DEQ on 8 April 2005.

It should be noted that during this reissuance, residents of Raspberry Falls raised concerns regarding the quality of their drinking water, which is a groundwater-based system operated by Loudoun Water. This development resides within a geologic formation known as karst. Karst can allow surface runoff during rain events to directly enter the groundwater table via sink holes and other conveyances; thus, introducing possible contaminates. The Loudoun County Board of Supervisors requested the Environmental Protection Agency (EPA) to perform a dye tracing study to specifically address the community's drinking water concerns. This study was to be conducted in April 2010.

The Loudoun County Board of Supervisors on 17 February 2010 adopted amendments to the Zoning Ordinance, Zoning Map, Facilities and Standards Manual, the Land Subdivision & Development Ordinance and other county ordinances to create a Limestone Overlay District (LOD), recognizing the geology and increased potential risks of groundwater contamination. The purpose of this action is to regulate the uses and activities within this area to further protect the groundwater sources. The Raspberry Falls development resides within this LOD.

On 23 November 2010, the Virginia Department of Health (VDH) officially determined that the untreated water at Well PW-1 is Groundwater Under the Direct Influence of Surface Water (GUDI). Loudoun Water promptly removed this well from service upon notification and has installed a replacement well located outside the LOD. Consequently, the proposed EPA dye tracing study was cancelled due to the GUDI determination.

The aforementioned groundwater discussion is beyond the purview of the VPDES Regulations and this surface discharge permit. However, DEQ-NRO staff does recognize this geologic formation, the resident's concerns and has included a reopener provision with this reissuance which allows the permit to be reopened during this term in order to address recommendations that may be deemed necessary by the Virginia Department of Health to further protect the groundwater supply and human health. See Section 21.k.

See **Attachment 2** for a facility schematic/diagram.

See **Attachment 3** for the Limestone Overlay District map.

TABLE 1
OUTFALL DESCRIPTION

Number	Discharge Sources	Design Flow / Expansion	Latitude / Longitude*
001	Domestic Wastewater	0.060 MGD / 0.165 MGD	39° 09' 50.4" N / 77° 33' 03.4" W
*Coordinates confirmed 25 March 2010			
See **Attachment 4** for the Waterford topographic map.			

11. Sludge Treatment and Disposal Methods:

Wasted sludge is pumped into the aerated sludge holding tank. Once the tank is full, it is hauled offsite by a contractor, currently A & M Septic, to the Broad Run Water Reclamation Facility (VA0091383) for further treatment and final disposal. Raspberry Falls Water Reclamation Facility generates approximately four (4) dry metric tons per year.

12. Discharges & Monitoring Stations Located Within Waterbody ID VAN-A03R:

TABLE 2
DISCHARGES & MONITORING STATIONS

ID / Permit Number	Facility Name	Type	Receiving Stream
VA0090573	Beacon Hill Water Treatment Plant	industrial discharge	Limestone Branch, UT
VA0067938	North Spring Behavioral Healthcare WWTP	municipal discharge	Limestone Branch, UT
1aLIM001.16	DEQ Ambient Monitoring Station at Limestone Branch and Route 15		
1aLIM001.80	DEQ Ambient Monitoring Station at Limestone Branch and Selma Lane		
VA0074942	Hiway Mobile Home Community LLC WWTP	municipal discharge	Limestone Branch, UT
VA0074934	One Stop Trailer Park WWTP		Potomac Run, UT
VA0021750	Lucketts Elementary School WWTP		Limestone Branch, UT
VA0061280	Skills USA/VICA WWTP		Clark's Run

13. Material Storage:

TABLE 3
MATERIAL STORAGE

Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Polymer	Three (3) bags	Stored inside building, under roof

14. Site Inspection: Performed by DEQ-NRO Compliance Staff on 23 September 2009. See **Attachment 5**.

A subsequent site visit was conducted by Permitting Staff on 25 March 2010.

No changes were noted since the September 2009 technical inspection; therefore, no inspection memo was completed for the 25 March 2010 site visit.

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

There is DEQ monitoring data available for the receiving stream. The monitoring station is located on Limestone Branch at the Route 15 bridge crossing, 1aLIM001.16 which is located approximately 0.95 rivermiles downstream of Outfall 001.

Impairments have been noted for Limestone Branch, from the headwaters down to the confluence with the Potomac River, for not meeting the Recreational Use due to exceedences of bacteria criteria. A Total Maximum Daily Load (TMDL) was developed and subsequently approved by the Environmental Protection Agency (EPA) on 6 July 2004. Originally, this facility received a Wasteload Allocation (WLA) of 1.74×10^{11} cfu/year for *E. coli* bacteria.

This WLA was based on a design flow of 0.1 MGD. Since the completion of the TMDL, the discharge for Raspberry Falls was combined with the proposed Selma Plantation Wastewater Treatment Plant (VA0090662). The proposed Selma Plantation WWTP permit expired 3 July 2006 with no request to reissue.

The two combined permits were given a WLA of 3.57×10^{11} cfu/year for *E. coli* bacteria. However, the current expanded design flow for this facility is 0.165 MGD and has since been assigned a WLA of 2.87×10^{11} cfu/year for *E. coli* bacteria under the aforementioned TMDL.

The Aquatic Life, Public Water Supply and Wildlife Uses are considered fully supporting.

See **Attachment 6** for Planning Statement.

b. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Limestone Branch, is located within Section 8 of the Potomac River Basin and designated as Class III water.

At all times, Class III waters must achieve a Dissolved Oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6.0 – 9.0 standard units (S.U.).

Attachment 7 details other Water Quality Criteria applicable to the receiving stream.

Ammonia:

The freshwater aquatic life Water Quality Criteria for ammonia is dependent on the instream temperature and pH. The 90th percentile temperature and pH values are utilized because they best represent the critical conditions of the receiving stream. However, the critical 30Q10 and 1Q10 flows of the receiving stream have been determined to be 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia Water Quality Standard. Staff derived a 90th percentile value of 8.4 S.U. for the effluent pH by utilizing reported discharge monitoring data from February 2005 to January 2010. Since there was no effluent temperature data available, it was staff's best professional judgement to use a default value of 25° C for summer and an assumed winter value of 15° C.

The ammonia criteria are shown in **Attachment 7**.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream and/or the effluent hardness (expressed as mg/L $CaCO_3$). The critical 7Q10 flow of the receiving stream is zero; therefore, ambient data is not available. In cases such as this, staff may utilize effluent data; however, there is none available. Staff guidance suggests using a default hardness value of 50 mg/L $CaCO_3$ for streams east of the Blue Ridge to derive the metals criteria.

The hardness-dependent metals criteria are shown in **Attachment 7**.

Bacteria Criteria:

The Virginia Water Quality Standards (9VAC25-260-170.A.) establishes the following criteria to protect primary contact recreational uses:

E. coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 mL)	126

[1]Four or more samples taken during any calendar month

c. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Limestone Branch, is located within Section 8 of the Potomac River Basin. This section has been designated with a special standard of "PWS".

Special Standard "PWS" designates a public water supply intake. The Board's Water Quality Standards establish numerical standards for specific parameters calculated to protect human health from toxic effects through drinking water and fish consumption. See 9VAC25-260-140.B. for applicable criteria.

d. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on 20 April 2010 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened species were identified within a 2 mile radius of the discharge: Wood Turtle; Upland Sandpiper (song bird); Loggerhead Shrike (song bird); Henslow's Sparrow (song bird); Bald Eagle; Green Floater (mussel); and Migrant Loggerhead Shrike (song bird).

The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore protect the threatened species found near the discharge.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on the fact that the critical 7Q10, 30Q10 and 1Q10 flows have been determined to be 0.0 MGD; thus, the flow within the stream will consist of primarily effluent during these critical periods. The proposed limitations have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria that are applicable to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. In this case since the critical 7Q10, 30Q10 and 1Q10 flows have been determined to be zero, the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from the permit application and Discharge Monitoring Reports (DMRs) from February 2005 to January 2010 has been reviewed and determined to be suitable for evaluation.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of Water Quality Criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream

The water segment receiving the discharge has been determined to have critical 7Q10, 30Q10 and 1Q10 flows of 0.0 MGD; therefore, no mixing zone exists and the WLA is equal to the C_o.

c. Effluent Limitations, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of Water Quality Criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation, 9VAC25-31-230.D., requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

The Raspberry Falls Water Reclamation Facility (WRF) began discharging in August 2003. It was decided during the 2005 reissuance that there was insufficient effluent data to develop ammonia criteria and subsequent limitations; therefore, staff used default values of 7.5 S.U. for pH and 25° C for temperature (**Attachment 8**). It was determined that the Total Kjeldahl Nitrogen (TKN) limitation developed during the initial issuance was protective of water quality and the TKN limitation of 3.0 mg/L was carried forward. This limit was based on the steady-state dissolved oxygen model utilized during the 2000 issuance, verified during the 2005 reissuance and again during this reissuance (**Attachment 9**).

During this reissuance, staff evaluated the effluent pH values ascertained from the February 2005 through January 2010 Discharge Monitoring Reports and concluded that the data were significantly different. The derived 90th percentile for pH was determined to be 8.4 S.U. (**Attachment 10**); notably higher than the default values utilized to derive the ammonia criteria in 2005. As a result, staff applied this latest data to determine new ammonia Water Quality Criteria, new wasteload allocations (WLAs) and proposed ammonia limitations (**Attachment 11**). Current DEQ guidance recommends utilizing a sole data point of 9.0 mg/L to ensure the evaluation adequately addresses the potential for ammonia to be present in discharges containing domestic sewage. The default value for temperature remained the same at 25° C for summer and an assumed value of 15° C for the winter months.

The calculated WLAs resulted in proposed monthly average ammonia limits of 0.97 mg/L for the 0.060 MGD plant and 0.77 mg/L for the 0.165 MGD plant.

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3). Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity and the basis for the above calculated ammonia limits.

It is generally accepted that Total Kjeldahl Nitrogen (TKN) consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to Nitrate (NO_3) and Nitrite (NO_2). It is estimated that a facility achieving a TKN limit of 3.0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity.

It is staff's best professional judgement that a TKN monthly average limit of 3.0 mg/L is still protective given the aforementioned and will be carried forward in this reissuance. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

In addition, staff proposes a maximum pH limitation of 8.4 S.U. This will ensure that any ammonia present exists as the ionized fraction and further protects water quality against ammonia toxicity at all times.

2) Total Residual Chlorine:

Chlorine is not utilized for disinfection; therefore, TRC limitations are not warranted.

3) Metals/Organics:

It is staff's best professional judgement that given the wastewater sources; limitations are not warranted at this time.

However, the permittee will be required to analyze the facility's effluent for substances noted in Attachment A of this permit after issuance of the Certificate to Operate (CTO) for the 0.165 MGD plant. See Section 21.h.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to Dissolved Oxygen (D.O.), carbonaceous-Biochemical Oxygen Demand-5 day ($cBOD_5$), Total Suspended Solids (TSS) and Total Kjeldahl Nitrogen (TKN) are proposed.

$cBOD_5$, Dissolved Oxygen and TKN limitations are based on best professional judgement, stream modeling conducted in October 2005, which was reaffirmed in March 2011 (**Attachment 9**), and Guidance Memo 00-2011. This guidance is applicable to waters such as this portion of Limestone Branch where the water is shallow and flow is intermittent.

It is staff's practice to equate the Total Suspended Solids limits with the $cBOD_5$ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

The proposed maximum pH limitation of 8.4 S.U. is more stringent than the current Water Quality Criteria of 9.0 S.U.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170 and the assigned WLA under the Limestone Branch TMDL.

e. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following tables. Limits and monitoring were established for the following parameters: $cBOD_5$, Total Suspended Solids, TKN, pH, Dissolved Oxygen, Total Nitrogen, Total Phosphorus, Nitrate+Nitrite and *E. coli.*

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

Sample Types and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19a. Effluent Limitations/Monitoring Requirements:

Design flow is 0.060 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the issuance of the CTO for the 0.165 MGD facility or the expiration date, whichever comes first.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	2,3	NA	NA	6.0 S.U.	8.4 S.U.	1/D	Grab
$cBOD_5$	3,4	10 mg/L 2.3 kg/day	15 mg/L 3.4 kg/day	NA	NA	1/M*	4H-C
Total Suspended Solids (TSS)	2	10 mg/L 2.3 kg/day	15 mg/L 3.4 kg/day	NA	NA	1/M*	4H-C
Dissolved Oxygen (DO)	3,4	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3,4	3.0 mg/L 0.70 kg/day	4.5 mg/L 1.0 kg/day	NA	NA	1/M*	4H-C
E. coli (Geometric Mean)	3	126 n/100 mL	NA	NA	NA	1/W*	Grab**
Nitrate+Nitrite, as N	2	NL mg/L	NA	NA	NA	1/M	4H-C
Total Nitrogen	2	NL mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus	2	NL mg/L	NA	NA	NA	1/M	4H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. Dissolved Oxygen Model – **Attachment 9**

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

* = See Section 24.

** = Samples shall be collected between 8 A.M. and 4 P.M.

19b. Effluent Limitations/Monitoring Requirements:

Design flow is 0.165 MGD.

Effective Dates: During the period beginning with the issuance of the CTO for the 0.165 MGD facility and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	2,3	NA	NA	6.0 S.U.	8.4 S.U.	1/D	Grab
$cBOD_5$	3,4	10 mg/L 6.2 kg/day	15 mg/L 9.4 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	10 mg/L 6.2 kg/day	15 mg/L 9.4 kg/day	NA	NA	3D/W	8H-C
Dissolved Oxygen (DO)	3,4	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3,4	3.0 mg/L 1.9 kg/day	4.5 mg/L 2.8 kg/day	NA	NA	3D/W	8H-C
E. coli (Geometric Mean)	3	126 n/100 mL	NA	NA	NA	3D/W	Grab*
Nitrate+Nitrite, as N	2	NL mg/L	NA	NA	NA	1/2W	8H-C
Total Nitrogen	2	NL mg/L	NA	NA	NA	1/2W	Calculated
Total Phosphorus	2	NL mg/L	NA	NA	NA	1/2W	8H-C

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. Dissolved Oxygen Model – **Attachment 9**

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3D/W = Three days every week.
1/2W = Once every two weeks.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

* = Samples shall be collected between 8 A.M. and 4 P.M.

20. Other Permit Requirements:

Part I.B. of the permit contains quantification levels and compliance reporting instructions

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions:

a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1. and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. On or before **TBD 2011**, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator at the 0.060 MGD design flow and Class II at the expanded flow tier of 0.165 MGD.

f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class I.

g. Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h. Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit six (6) months after issuance of the Certificate to Operate for the 0.165 MGD plant. The results are required to be submitted eight (8) months after issuance of the Certificate to Operate.

i. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

j. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

k. Groundwater Under the Direct Influence of Surface Water Reopener. This special condition recognizes the unique geological formation known as karst in the Raspberry Falls development. This condition allows the permit to be reopened during this term in order to address recommendations that may be deemed necessary by the Virginia Department of Health to further protect the groundwater supply and human health.

l. TMDL Reopener. This special condition allows the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Permit Section Part II: Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:

- A Groundwater Under the Direct Influence of Surface Water Reopener was included with this reissuance.
- A Class II operator requirement at the 0.165 MGD design flow was added with this reissuance.

b. Monitoring and Effluent Limitations:

- Maximum pH limitation was reduced from 9.0 S.U. to 8.4 S.U.
- The DO minimum limitation for the 0.165 MGD plant was corrected; 6.0 mg/L to 7.0 mg/L due to a typographical error during the last reissuance.

c. Other:

- The receiving stream was corrected with this reissuance to reflect that this facility discharges directly into Limestone Branch, not an unnamed tributary.

24. Variances/Alternate Limits or Conditions: Given that the influent flow is only 30% of the plant design, Loudoun Water requested that the monitoring frequencies be reduced for the following parameters:

Parameters	Monitoring Frequencies	
	VPDES Permit Manual	Proposed Reduction
$cBOD_5$, TSS and TKN	once per week (1/W)	once per month (1/M)
E. coli	two days per week (2D/W)	once per week (1/W)

A review of DMR data indicated that no effluent violations have occurred at this facility during the last five (5) years. The current VPDES Permit Manual allows for monitoring reductions for reissuances based on facilities demonstrating exemplary operations and consistently achieving permit requirements. It is staff's best professional judgement that reduced monitoring frequencies for the above parameters are appropriate for this facility.

Should the permittee be issued a Warning Letter, a Notice of Violation or be subject to an active enforcement action related to effluent limitation violations, the recommended monitoring frequencies above shall be re-imposed and shall remain in effect for a period of no less than six (6) months. If the facility remains in compliance during the above period of no less than six (6) months, the permittee may submit a written request re-instating the reduced monitoring frequency.

When the monthly average flows reach 0.040 MGD for any three (3) consecutive months or upon issuance of the CTO for the 0.165 MGD facility, the reduced monitoring frequencies shall cease and those frequencies set forth in the VPDES Permit Manual shall become effective and shall remain in effect until the permit expiration date.

The monitoring frequencies for the 0.165 MGD facility shall reflect those as set forth in the VPDES Permit Manual for that design flow.

25. Public Notice Information:

First Public Notice Date: **TBD** 2011 Second Public Notice Date: **TBD** 2011

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court; Woodbridge, VA 22193; Telephone No. (703) 583-3873; Douglas.Frasier@deq.virginia.gov. See **Attachment 12** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. A public hearing may be held, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless a public hearing is granted. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

Downstream impairments have been noted for Limestone Branch for not meeting the Recreational Use Standard due to exceedences of bacteria. A Total Maximum Daily Load (TMDL) was developed and approved by the Environmental Protection Agency (EPA) on 6 July 2004. This facility received a Wasteload Allocation (WLA) of 2.87×10^{11} cfu/year for *E. coli*.

27. Additional Comments:

Previous Board Action(s):	Not Applicable.
Staff Comments:	Reissuance was delayed due to a proposed dye tracing study by EPA to determine if the groundwater sources utilized for the community's drinking water were under the direct influence of surface waters. In addition, several residents requested that the permit not be reissued until the above proposed study was completed. Loudoun County Sanitation Authority concurred with delaying the reissuance.
Public Comment:	Comments received during the public notice are provided in the attached Response to Comments (**Attachment 13**).
EPA Checklist:	The checklist can be found in **Attachment 14**.

Fact Sheet Attachments

Table of Contents

Raspberry Falls Water Reclamation Facility
VA0088196
2011 Reissuance

To: Shih-Cheng Chang@WDBR1@DEQ
Cc:
Bcc:
From: Paul E. Herman@WQA@DEQ
Subject: re: Flow estimate for Raspberry Falls STP VA0088196
Date: Friday, August 20, 1999 14:51:17 EDT
Attach:
Certify: N
Forwarded by:

SC Chang,

Thanks for providing me with a summary of your observations during your site visit to the Raspberry Falls STP. Since you observed no flow from the dam and no flow instream above the outfall, the revised flow frequencies for this facility are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean.

If you have any questions concerning these revised flows, please let me know.

Attachment 1

To: Paul E. Herman@WQA@DEQ
Cc:
Bcc:
From: Shih-Cheng Chang@WDBR1@DEQ
Subject: Flow estimate for Raspberry Falls STP VA0088196
Date: Thursday, August 5, 1999 13:50:43 EDT
Attach:
Certify: N
Forwarded by:

Thanks for your memo dated July 12, 19999 that provided the flow information for Limestone Branch, the receiving water for the Raspberry Falls STP. I made a site inspection last week. I was surprised to find that there is a concrete dam less than 100 ft. upstream of the proposed outfall. Behind the dam is a pond, maybe 20 acres or more in area. There was no flow at all coming from the dam, nor in the stream. In my view, the dam will have an effect on the projected stream flow. I am not sure if you are aware of existence of this dam. As the flow estimates you provided are the same as the ones you gave to Karan in 1993, I presume you probably have no knowledge of the dam. If this is the case, then the flow estimates probably will need to be revised.

Would you be kind enough to provide me a revised estimate for 1Q10, 7Q10, 30Q10 and harmonic flow at your earliest convenience ?

Thanks. Best regards.

SC Chang

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Office of Water Quality Assessments
629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

SUBJECT: Flow Frequency Determination
Raspberry Falls STP – #VA0088196

TO: Shih-Cheng Chang, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: July 12, 1999

COPIES: Ron Gregory, Charles Martin, File

This memo supersedes my September 15, 1993, memo to Karen Pallansch concerning the subject VPDES permit.

The Raspberry Falls STP discharges to the Limestone Branch near Waterford, VA. Stream flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The USGS conducted several flow measurements on a tributary of Limestone Branch from 1979 to 1980. The measurements were made at the Route 661 bridge, approximately 1.0 mile northeast of the discharge point. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the Catoctin Creek at Taylorstown, VA (#01638480). The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph.

The flow frequencies at the discharge point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site, and the discharge point are presented below. This analysis does not address discharges, withdrawals or springs which my lie upstream of the discharge point.

Catoctin Creek at Taylorstown, VA (#01638480):

Drainage Area = 89.6 mi^2

1Q10 = 0.84 cfs	High Flow 1Q10 = 7.3 cfs
7Q10 = 1.11 cfs	High Flow 7Q10 = 10 cfs
30Q5 = 3.91 cfs	HM = 15 cfs

Limestone Branch trib. #1 at Route 661, near Leesburg, VA (#01643600):

Drainage Area = 6.82 mi^2

1Q10 = 0.23 cfs	High Flow 1Q10 = 1.00 cfs
7Q10 = 0.29 cfs	High Flow 7Q10 = 1.25 cfs
30Q5 = 0.68 cfs	HM = 1.60 cfs

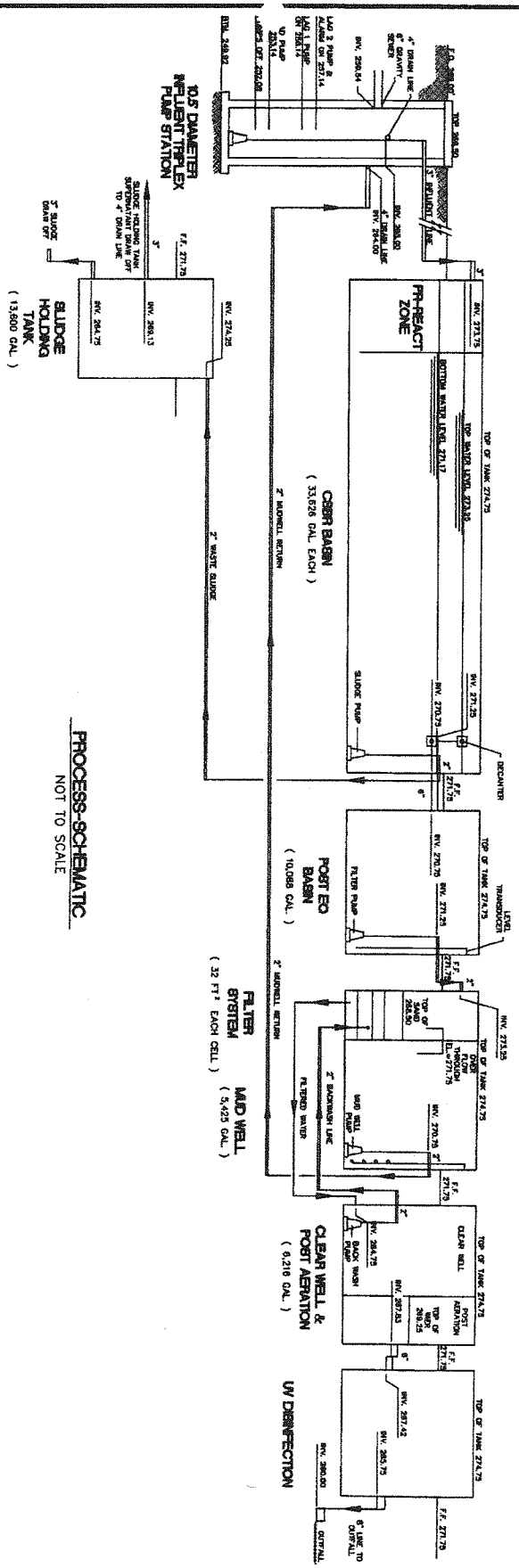
Limestone Branch at Raspberry Falls STP discharge point:

Drainage Area = 1.69 mi^2

1Q10 = 0.06 cfs	High Flow 1Q10 = 0.25 cfs
7Q10 = 0.07 cfs	High Flow 7Q10 = 0.31 cfs
30Q5 = 0.17 cfs	HM = 0.40 cfs

The drainage area of Limestone Branch at its mouth is 16.19 mi^2, and the high flow months are December through May.

If you have any questions concerning this analysis, please give me a call.



Rickmond Engineering, Inc.
Engineering Surveying Land Planning
1643 Merrimac Trail
Williamsburg, VA 23185
Voice: (757)229-1775
Fax: (757)229-4683
Vint Hill • P.O. Box 861647
Warrenton, VA 20187
Voice: (540)349-7730
Fax: (540)349-7731
www.rickmond.com

PLAINS OF RASPBERRY WWTP

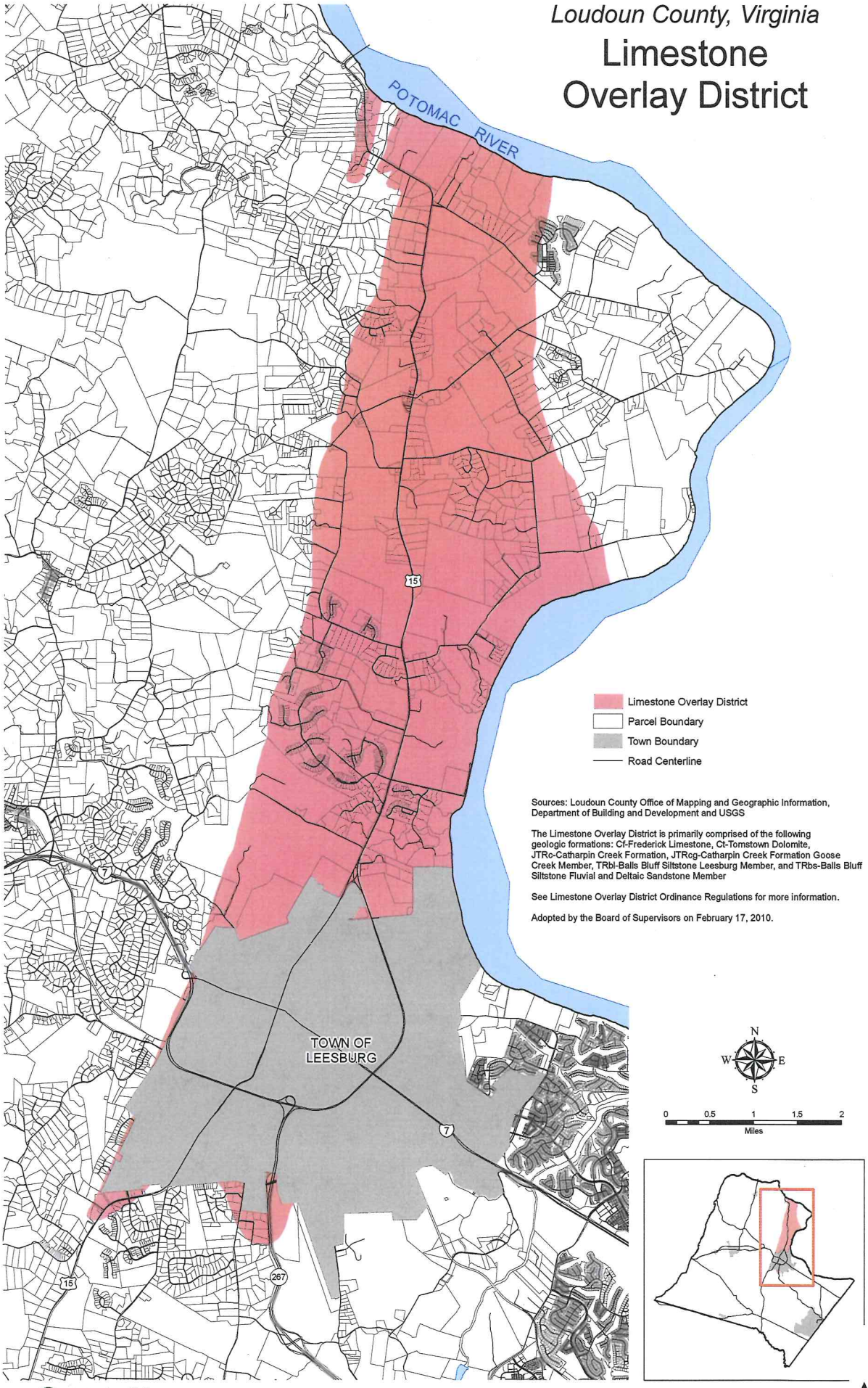
PLANT PROCESS

PROJ. NO.:	99127
DWG:	I:\99127\O&M...
DATE:	7/20/01
SCALE:	NONE
FIGURE	1

Attachment 2

Loudoun County, Virginia

Limestone Overlay District



Sources: Loudoun County Office of Mapping and Geographic Information, Department of Building and Development and USGS

The Limestone Overlay District is primarily comprised of the following geologic formations: Cf-Frederick Limestone, Ct-Tomstown Dolomite, JTRc-Catharpin Creek Formation, JTRcg-Catharpin Creek Formation Goose Creek Member, TRbl-Balls Bluff Siltstone Leesburg Member, and TRbs-Balls Bluff Siltstone Fluvial and Deltaic Sandstone Member

See Limestone Overlay District Ordinance Regulations for more information.

Adopted by the Board of Supervisors on February 17, 2010.

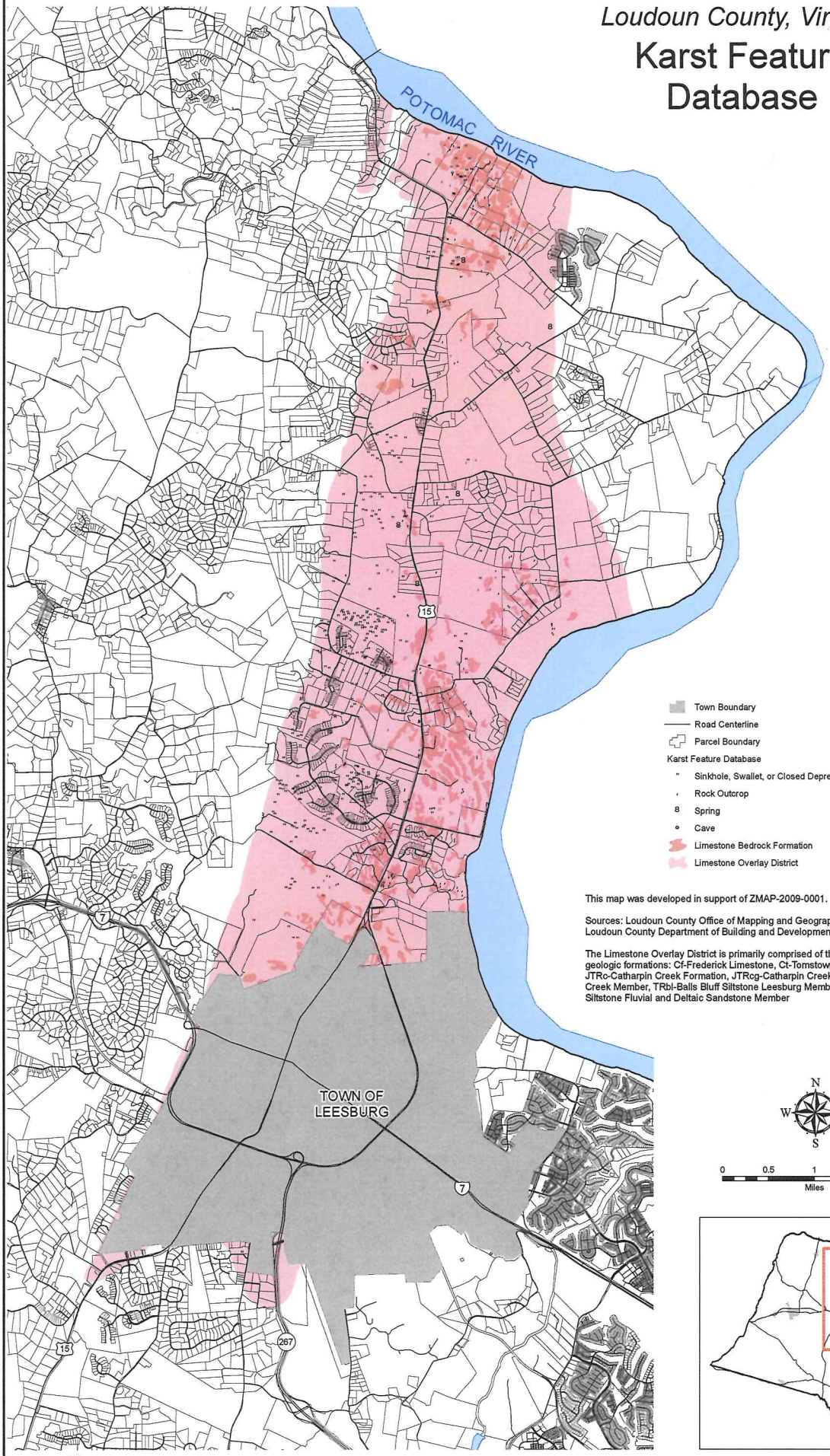
Loudoun County, Virginia
Department of Building and Development

Mapped Date: February 18, 2010
Map Number: 2010-019

Attachment 3

Loudoun County, Virginia

Karst Feature Database



- Town Boundary
- Road Centerline
- Parcel Boundary

Karst Feature Database

- Sinkhole, Swallet, or Closed Depression
- Rock Outcrop
- Spring
- Cave
- Limestone Bedrock Formation
- Limestone Overlay District

This map was developed in support of ZMAP-2009-0001.

Sources: Loudoun County Office of Mapping and Geographic Information, Loudoun County Department of Building and Development, and USGS

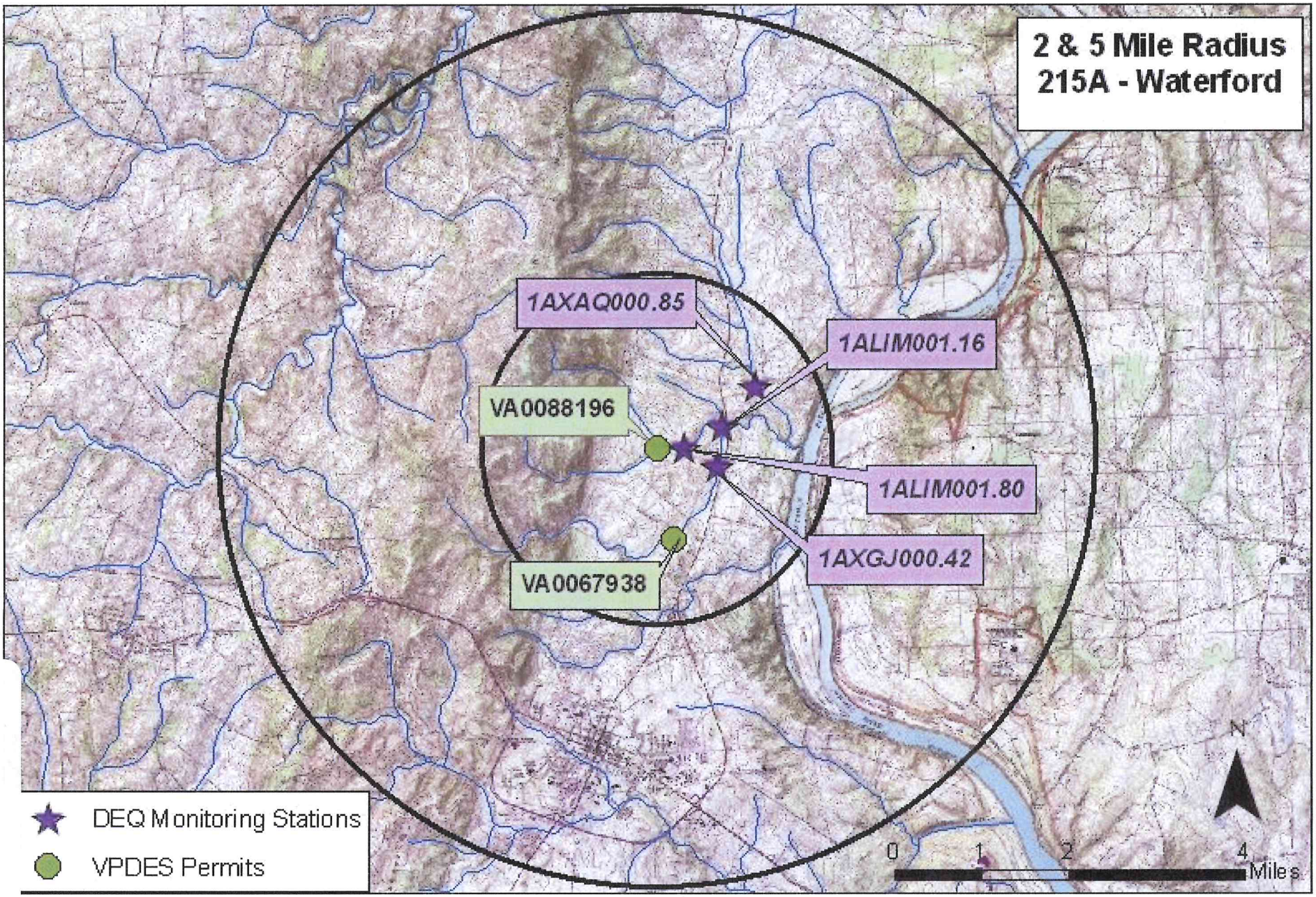
The Limestone Overlay District is primarily comprised of the following geologic formations: Cf-Frederick Limestone, Ct-Tomstown Dolomite, JTRc-Catharpin Creek Formation, JTRcg-Catharpin Creek Formation Goose Creek Member, TRbl-Balls Bluff Siltstone Leesburg Member, and TRbs-Balls Bluff Siltstone Fluvial and Deltaic Sandstone Member

N
W E
S

0 0.5 1 1.5 2
Miles

Loudoun County, Virginia
Department of Building and Development

Mapped Date: 5/28/2010
OMAGI Map Number: 2009-132
B&D Map Number: BD_09_0010_03



Attachment 4

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

October 23, 2009

Todd Danielson
Manager of Community Systems
Loudoun Water
P.O. Box 4000
Ashburn, VA 20146

Re: Raspberry Falls STP– permit #VA0088196

Dear Mr. Danielson:

Enclosed are copies of the technical and laboratory inspection reports generated from observations made while performing a Facility Technical Inspection at the Raspberry Falls – Sewage Treatment Plant (STP) on September 23, 2009. The compliance staff would like to thank Bill Nester and Les Morefield for their time and assistance during the inspection.

Summaries for both the technical and laboratory inspections are enclosed. The facility had Deficiencies for the laboratory inspection. Please note the requirements and recommendations addressed in the technical summary and submit in writing a progress report to this office by **November 23, 2009** for the items addressed. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you choose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm that the facility is in compliance with permit requirements.

As a reminder, any non-commercial laboratory that wishes to continue compliance sample analysis after January 1, 2012 must apply to DCLS under the VELAP program. The applications were due to DCLS by September 29, 2009. More information is available at http://www.dgs.virginia.gov/DivisionofConsolidatedLaboratoryServices/Services/EnvironmentalLaboratoryCertification/tabid/1059/Default.aspx

Attachment 5

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office (NRO) at (703) 583-3882 or by E-mail at Sharon.Allen@deq.virginia.gov.

Sincerely,

Sharon Allen

Sharon Allen
Environmental Specialist II
Water Compliance Inspector

cc: Permits / DMR File

Electronic copy sent:
Compliance Manager- DEQ
Les Morefield- Community Systems Supervisor, Loudoun Water

DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0088196	**January 20, 2005**		**January 19, 2010**

Facility Name	Address	Telephone Number
Raspberry Falls	**16316 Limestone Court Leesburg, VA 20176**	**703-777-6577**
Owner Name	Address	Telephone Number
Loudoun Water	**P.O. Box 4000 Ashburn, VA 20146**	**571-291-7700**
Responsible Official	Title	Telephone Number
Todd Danielson	**Manager of Community Systems**	**571-291-7835**
Responsible Operator	Operator Cert. Class/number	Telephone Number
William Nester	**Class I; 1909000505**	**703-777-6577**

TYPE OF FACILITY:

DOMESTIC				**INDUSTRIAL**			
Federal		Major		Major		Primary	
Non-federal	**X**	Minor	**X**	Minor		Secondary	

INFLUENT CHARACTERISTICS:	DESIGN:
Flow	**0.06**
Population Served	**400**
Connections Served	**125**
BOD_5 (June-August ,2009)	**415**
TSS (June-August, 2009)	**684**

EFFLUENT LIMITS: mg/L unless otherwise specified

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
pH, s.u.	**6.0**		**9.0**	**DO**	**7.0**		
$CBOD_5$		**10**	**15**	**TSS**		**10**	**15**
TKN		**3.0**	**4.5**	**TP**		**NL**	**NA**
NO2-NO3		**NL**	**NA**	**TN**		**NL**	**NA**
E. coli, n/100ml		**126**					

Receiving Stream	**UT to Limestone Branch**
Basin	**Potomac River**
Discharge Point (LAT)	**77° 33′ 15″**
Discharge Point (LONG)	**39° 09′ 30″**

Problems identified at last inspection (March 2005):

None

TECHNICAL SUMMARY for Current Inspection 2009

Comments:

- **The facility and grounds are well maintained and records appear complete.**

Recommendations for action:

- **The area around Outfall 001 is overgrown and should be mowed to allow easy observation of confluence of the effluent stream and the receiving stream.**

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME: Raspberry Falls STP	FACILITY NO: VA0088196	INSPECTION DATE: September 23, 2009
(X) Deficiencies	( ) No Deficiencies	

LABORATORY RECORDS

The Laboratory Records section had **No Deficiencies** noted during the inspection.

NOTE:

- **Several problems with records from the Regional Laboratory were noted when they were reviewed to determine compliance with sample hold times. These problems were discussed with staff at the Regional Lab and have been corrected.**
- **The date and time of analysis not recorded on regional laboratory's bench sheet for TSS. As a result, I was unable to verify that samples were analyzed within hold time. I spoke with Marnie Mix at the regional lab on October 13, 2009, who told me that this problem has been corrected and the date analyzed is now on the bench sheet.**

GENERAL SAMPLING AND ANALYSIS

The General Sampling and Analysis section had **No Deficiencies** noted during the inspection.

LABORATORY EQUIPMENT

The Laboratory Equipment section had **Deficiencies** noted during the inspection.

- **The thermister for the multi-meter used for pH and DO analysis has not been compared to an NIST traceable thermometer in over a year. At the time of this report, the master thermometer had been sent in to be re-certified.**

INDIVIDUAL PARAMETERS

pH

The analysis for the parameter of pH had **No Deficiencies** noted during the inspection.

DO

The analysis for the parameter of Dissolved Oxygen (DO) had **No Deficiencies** noted during the inspection.

E. coli; m-Coli Blue

The analysis for the parameter E. coli had **Deficiencies** noted during the inspection.

- **The autoclave log supplied for the month of September did not include the time the sterilized funnels were removed from the autoclave or document the time sterilized at 121° C.**
- **Used agar plates have not been sterilized prior to disposal. Plates must be sterilized for 30 minutes at 121 °C. Records of sterilizations dates, times, and temperatures must be included in the autoclave log.**

COMMENTS

The staff should check the DEQ website at http://www.deq.state.va.us/vpdes/checklist.html and download the most recent inspection check sheets to keep up to date with changes in minimal laboratory requirements.

To:	Doug Frasier
From:	Jennifer Carlson
Date:	February 14, 2011
Subject:	Planning Statement for Raspberry Falls WRF
Permit Number:	VA0088196

Discharge Type:	Minor Municipal
Discharge Flow:	0.06 with expansion to 0.165 MGD
Receiving Stream:	Limestone Branch
Latitude / Longitude:	39°9'50.5", -77°33'3.3"
Waterbody ID:	VAN-A03R, PL05
Streamcode:	1aLIM
Rivermile:	2.2
Water Quality Stds:	Class III, Section 8, special stds. PWS

1. Is there monitoring data for the receiving stream?

Yes.

- If yes, please attach latest summary.

This facility discharges into Limestone Branch. The 2010 Assessment Unit for this portion of Limestone Branch is VAN-A03R_LIM01B06, which begins at the headwaters of Limestone Branch and continues downstream until the edge of the 8b PWS supply designation, approximately 0.05 rivermiles upstream from the Route 15 bridge. The DEQ monitoring station within this assessment unit is Station 1ALIM001.16, which is located on Limestone Branch at the Route 15 bridge crossing. Station 1ALIM001.16 is located approximately 0.95 rivermiles downstream from the outfall of VA0088196. Below is a summary of the monitoring information for this segment, as taken from the Final 2010 Integrated Assessment:

Class III, Section 8, special stds. PWS.

DEQ ambient water quality monitoring stations 1ALIM001.16, at Route 15, and 1aLIM001.80 at Selma Lane.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL for the Limestone Branch watershed has been completed and approved.

The aquatic life, public water supply and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

Attachment 6

- If no, where is the nearest downstream monitoring station.

2. Is the receiving stream on the current 303(d) list?

   Yes, Limestone Branch is on the current 303(d) List.

   - If yes, what is the impairment?

   This segment of Limestone Branch (VAN-A03R_MIN01B06) is listed as not supporting the recreation use. Sufficient excursions from the maximum E. coli bacteria criterion (11 of 31 samples - 35.5%) were recorded at DEQ's ambient water quality monitoring station (1aLIM001.16) at the Route 15 crossing, and sufficient excursions from the maximum E. coli bacteria criterion (2 of 8 samples - 25.0%) were recorded at DEQ's ambient water quality monitoring station (1aLIM001.80) at Selma Lane to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

   - Has the TMDL been prepared?

   Yes. The Bacteria TMDL for Limestone Branch was approved by EPA on 07/06/2004.

   - If yes, what is the WLA for the discharge?

   Yes. The WLA given for VA0088196 in the Limestone Branch TMDL was 1.74×10^{11} cfu/year of *E. coli* bacteria. This WLA was based off a design flow of 0.1 MGD. Since the completion of the TMDL, the discharge for VA0088196 was combined with the discharge from the Selma Plantation WWTP (VA0090662) and the permit for Selma Plantation WWTP was terminated. The TMDL included a WLA of 1.83×10^{11} cfu/year of *E. coli* bacteria for Selma Plantation WWTP. The two permits combined were given a WLA of 3.57×10^{11} cfu/year of *E. coli.* The currently listed maximum design flow for Raspberry Falls is 0.165 MGD, which corresponds to a WLA of **2.87×10^{11} cfu/year of *E. coli* bacteria.**

   - If no, what is the schedule for the TMDL?

   N/A

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

   N/A

   - If yes, what is the impairment? N/A

   - Has a TMDL been prepared? N/A

   - Will the TMDL include the receiving stream? N/A

- Is there a WLA for the discharge? N/A

- What is the schedule for the TMDL? N/A

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   Not at this time.

5. Fact Sheet Requirements – Please provide information on other individual VPDES permits or VA DEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

   The Town of Leesburg's public water supply intake is located within a 5 mile radius of this facility. There is one other VDPES permit located within a 2 mile radius of this facility, North Spring Behavioral Healthcare WWTP – VA0067938. Additionally, there are 4 DEQ water quality monitoring stations, 1aXGJ000.42, 1aXAQ000.85, 1aLIM001.16 and 1aLIM001.80, within the 2 mile radius.

6. The drainage area at Outfall 001 is 1.7 mi^2.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Raspberry Falls WRF Permit No.: VA0088196

Receiving Stream: Limestone Branch, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =		mg/L	1Q10 (Annual) =	0	MGD	Annual - 1Q10 Mix =	100	%	Mean Hardness (as CaCO3) =	50	mg/L
90% Temperature (Annual) =		deg C	7Q10 (Annual) =	0	MGD	- 7Q10 Mix =	100	%	90% Temp (Annual) =	25	deg C
90% Temperature (Wet season) =		deg C	30Q10 (Annual) =	0	MGD	- 30Q10 Mix =	100	%	90% Temp (Wet season) =	15	deg C
90% Maximum pH =		SU	1Q10 (Wet season) =	0	MGD	Wet Season - 1Q10 Mix =	100	%	90% Maximum pH =	8.4	SU
10% Maximum pH =		SU	30Q10 (Wet season)	0	MGD	- 30Q10 Mix =	100	%	10% Maximum pH =	8.1	SU
Tier Designation (1 or 2) =	1		30Q5 =	0	MGD				Discharge Flow =	0.165	MGD
Public Water Supply (PWS) Y/N? =	y		Harmonic Mean =	0	MGD						
Trout Present Y/N? =	n										
Early Life Stages Present Y/N? =	y										

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	6.7E+02	9.9E+02	--	--	6.7E+02	9.9E+02	--	--	--	--	--	--	--	--	--	--	6.7E+02	9.9E+02
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	6.1E+00	9.3E+00	--	--	--	--	--	--	--	--	--	--	6.1E+00	9.3E+00
Acrylonitrile [C]	0	--	--	5.1E-01	2.5E+00	--	--	5.1E-01	2.5E+00	--	--	--	--	--	--	--	--	--	--	5.1E-01	2.5E+00
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	3.0E+00	--	4.9E-04	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	4.9E-04	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	3.88E+00	6.56E-01	--	--	3.9E+00	6.6E-01	--	--	--	--	--	--	--	--	--	--	3.9E+00	6.6E-01	--	--
Ammonia-N (mg/l) (High Flow)	0	3.88E+00	1.25E+00	--	--	3.9E+00	1.3E+00	--	--	--	--	--	--	--	--	--	--	3.9E+00	1.3E+00	--	--
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	8.3E+03	4.0E+04	--	--	--	--	--	--	--	--	--	--	8.3E+03	4.0E+04
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	5.6E+00	6.4E+02	--	--	--	--	--	--	--	--	--	--	5.6E+00	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.4E+02	1.5E+02	1.0E+01	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	1.0E+01	--
Barium	0	--	--	2.0E+03	--	--	--	2.0E+03	--	--	--	--	--	--	--	--	--	--	--	2.0E+03	--
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	2.2E+01	5.1E+02	--	--	--	--	--	--	--	--	--	--	2.2E+01	5.1E+02
Benzidine [C]	0	--	--	8.6E-04	2.0E-03	--	--	8.6E-04	2.0E-03	--	--	--	--	--	--	--	--	--	--	8.6E-04	2.0E-03
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	3.0E-01	5.3E+00	--	--	3.0E-01	5.3E+00	--	--	--	--	--	--	--	--	--	--	3.0E-01	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	1.4E+03	6.5E+04	--	--	--	--	--	--	--	--	--	--	1.4E+03	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	1.2E+01	2.2E+01	--	--	1.2E+01	2.2E+01	--	--	--	--	--	--	--	--	--	--	1.2E+01	2.2E+01
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	4.3E+01	1.4E+03	--	--	--	--	--	--	--	--	--	--	4.3E+01	1.4E+03
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	1.5E+03	1.9E+03	--	--	--	--	--	--	--	--	--	--	1.5E+03	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	5.0E+00	--	1.8E+00	6.6E-01	5.0E+00	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	5.0E+00	--
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	2.3E+00	1.6E+01	--	--	--	--	--	--	--	--	--	--	2.3E+00	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	2.4E+00	4.3E-03	8.0E-03	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	8.0E-03	8.1E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	8.6E+05	2.3E+05	2.5E+05	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	2.5E+05	--
TRC	0	1.9E+01	1.1E+01	--	--	1.9E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	--	--
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	1.3E+02	1.6E+03	--	--	--	--	--	--	--	--	--	--	1.3E+02	1.6E+03

Attachment 7

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	4.0E+00	1.3E+02	--	--	--	--	--	--	--	--	--	--	4.0E+00	1.3E+02
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	3.4E+02	1.1E+04	--	--	--	--	--	--	--	--	--	--	3.4E+02	1.1E+04
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	1.0E+03	1.6E+03	--	--	--	--	--	--	--	--	--	--	1.0E+03	1.6E+03
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	8.1E+01	1.5E+02	--	--	--	--	--	--	--	--	--	--	8.1E+01	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.3E-02	4.1E-02	--	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	--	--
Chromium III	0	3.2E+02	4.2E+01	--	--	3.2E+02	4.2E+01	--	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.6E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
Chrysene [C]	0	--	--	3.8E-03	1.8E-02	--	--	3.8E-03	1.8E-02	--	--	--	--	--	--	--	--	--	--	3.8E-03	1.8E-02
Copper	0	7.0E+00	5.0E+00	1.3E+03	--	7.0E+00	5.0E+00	1.3E+03	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	1.3E+03	--
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	2.2E+01	5.2E+00	1.4E+02	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	1.4E+02	1.6E+04
DDD [C]	0	--	--	3.1E-03	3.1E-03	--	--	3.1E-03	3.1E-03	--	--	--	--	--	--	--	--	--	--	3.1E-03	3.1E-03
DDE [C]	0	--	--	2.2E-03	2.2E-03	--	--	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	--	--	2.2E-03	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	1.1E+00	1.0E-03	2.2E-03	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	2.2E-03	2.2E-03
Demeton	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Diazinon	0	1.7E-01	1.7E-01	--	--	1.7E-01	1.7E-01	--	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	--	--
Dibenz(a,h)anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	--	--	3.8E-02	1.8E-01
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	4.2E+02	1.3E+03	--	--	--	--	--	--	--	--	--	--	4.2E+02	1.3E+03
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	3.2E+02	9.6E+02	--	--	--	--	--	--	--	--	--	--	3.2E+02	9.6E+02
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	6.3E+01	1.9E+02	--	--	--	--	--	--	--	--	--	--	6.3E+01	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	2.1E-01	2.8E-01	--	--	--	--	--	--	--	--	--	--	2.1E-01	2.8E-01
Dichlorobromomethane [C]	0	--	--	5.5E+00	1.7E+02	--	--	5.5E+00	1.7E+02	--	--	--	--	--	--	--	--	--	--	5.5E+00	1.7E+02
1,2-Dichloroethane [C]	0	--	--	3.8E+00	3.7E+02	--	--	3.8E+00	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	3.7E+02
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	3.3E+02	7.1E+03	--	--	--	--	--	--	--	--	--	--	3.3E+02	7.1E+03
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	1.4E+02	1.0E+04	--	--	--	--	--	--	--	--	--	--	1.4E+02	1.0E+04
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	7.7E+01	2.9E+02	--	--	--	--	--	--	--	--	--	--	7.7E+01	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	5.0E+00	1.5E+02	--	--	--	--	--	--	--	--	--	--	5.0E+00	1.5E+02
1,3-Dichloropropene [C]	0	--	--	3.4E+00	2.1E+02	--	--	3.4E+00	2.1E+02	--	--	--	--	--	--	--	--	--	--	3.4E+00	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	2.4E-01	5.6E-02	5.2E-04	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	5.2E-04	5.4E-04
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	1.7E+04	4.4E+04	--	--	--	--	--	--	--	--	--	--	1.7E+04	4.4E+04
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	3.8E+02	8.5E+02	--	--	--	--	--	--	--	--	--	--	3.8E+02	8.5E+02
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	2.7E+05	1.1E+06	--	--	--	--	--	--	--	--	--	--	2.7E+05	1.1E+06
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	2.0E+03	4.5E+03	--	--	--	--	--	--	--	--	--	--	2.0E+03	4.5E+03
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	6.9E+01	5.3E+03	--	--	--	--	--	--	--	--	--	--	6.9E+01	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	1.3E+01	2.8E+02	--	--	--	--	--	--	--	--	--	--	1.3E+01	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	3.4E+01	--	--	1.1E+00	3.4E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	5.0E-08	5.1E-08	--	--	--	--	--	--	--	--	--	--	5.0E-08	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	3.6E-01	2.0E+00	--	--	--	--	--	--	--	--	--	--	3.6E-01	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	2.2E-01	5.6E-02	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	6.2E+01	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	6.2E+01	8.9E+01	--	--	--	--	--	--	--	--	--	--	6.2E+01	8.9E+01
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	8.6E-02	3.6E-02	5.9E-02	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	5.9E-02	6.0E-02
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	2.9E-01	3.0E-01	--	--	--	--	--	--	--	--	--	--	2.9E-01	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	5.3E+02	2.1E+03	--	--	--	--	--	--	--	--	**--**	**--**	**5.3E+02**	**2.1E+03**
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	1.3E+02	1.4E+02	--	--	--	--	--	--	--	--	**--**	**--**	**1.3E+02**	**1.4E+02**
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	1.1E+03	5.3E+03	--	--	--	--	--	--	--	--	**--**	**--**	**1.1E+03**	**5.3E+03**
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+02	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+02**	**--**
Guthion	0	--	1.0E-02	--	--	--	1.0E-02	--	--	--	--	--	--	--	--	--	--	**--**	**1.0E-02**	**--**	**--**
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	5.2E-01	3.8E-03	7.9E-04	7.9E-04	--	--	--	--	--	--	--	--	**5.2E-01**	**3.8E-03**	**7.9E-04**	**7.9E-04**
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	5.2E-01	3.8E-03	3.9E-04	3.9E-04	--	--	--	--	--	--	--	--	**5.2E-01**	**3.8E-03**	**3.9E-04**	**3.9E-04**
Hexachlorobenzene[C]	0	--	--	2.8E-03	2.9E-03	--	--	2.8E-03	2.9E-03	--	--	--	--	--	--	--	--	**--**	**--**	**2.8E-03**	**2.9E-03**
Hexachlorobutadiene[C]	0	--	--	4.4E+00	1.8E+02	--	--	4.4E+00	1.8E+02	--	--	--	--	--	--	--	--	**--**	**--**	**4.4E+00**	**1.8E+02**
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	2.6E-02	4.9E-02	--	--	2.6E-02	4.9E-02	--	--	--	--	--	--	--	--	**--**	**--**	**2.6E-02**	**4.9E-02**
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	9.1E-02	1.7E-01	--	--	9.1E-02	1.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**9.1E-02**	**1.7E-01**
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	9.5E-01	--	9.8E-01	1.8E+00	--	--	--	--	--	--	--	--	**9.5E-01**	**--**	**9.8E-01**	**1.8E+00**
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	4.0E+01	1.1E+03	--	--	--	--	--	--	--	--	**--**	**--**	**4.0E+01**	**1.1E+03**
Hexachloroethane[C]	0	--	--	1.4E+01	3.3E+01	--	--	1.4E+01	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.4E+01**	**3.3E+01**
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	--	--	--	--	--	--	--	**--**	**2.0E+00**	**--**	**--**
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	3.8E-02	1.8E-01	--	--	--	--	--	--	--	--	**--**	**--**	**3.8E-02**	**1.8E-01**
Iron	0	--	--	3.0E+02	--	--	--	3.0E+02	--	--	--	--	--	--	--	--	--	**--**	**--**	**3.0E+02**	**--**
Isophorone[C]	0	--	--	3.5E+02	9.6E+03	--	--	3.5E+02	9.6E+03	--	--	--	--	--	--	--	--	**--**	**--**	**3.5E+02**	**9.6E+03**
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	**--**	**0.0E+00**	**--**	**--**
Lead	0	4.9E+01	5.6E+00	1.5E+01	--	4.9E+01	5.6E+00	1.5E+01	--	--	--	--	--	--	--	--	--	**4.9E+01**	**5.6E+00**	**1.5E+01**	**--**
Malathion	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	**--**	**1.0E-01**	**--**	**--**
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+01**	**--**
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	**1.4E+00**	**7.7E-01**	**--**	**--**
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	4.7E+01	1.5E+03	--	--	--	--	--	--	--	--	**--**	**--**	**4.7E+01**	**1.5E+03**
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	4.6E+01	5.9E+03	--	--	--	--	--	--	--	--	**--**	**--**	**4.6E+01**	**5.9E+03**
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	--	--	--	--	--	--	--	**--**	**3.0E-02**	**1.0E+02**	**--**
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	**--**	**0.0E+00**	**--**	**--**
Nickel	0	1.0E+02	1.1E+01	6.1E+02	4.6E+03	1.0E+02	1.1E+01	6.1E+02	4.6E+03	--	--	--	--	--	--	--	--	**1.0E+02**	**1.1E+01**	**6.1E+02**	**4.6E+03**
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+04	--	--	--	--	--	--	--	--	--	**--**	**--**	**1.0E+04**	**--**
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	1.7E+01	6.9E+02	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+01**	**6.9E+02**
N-Nitrosodimethylamine[C]	0	--	--	6.9E-03	3.0E+01	--	--	6.9E-03	3.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**6.9E-03**	**3.0E+01**
N-Nitrosodiphenylamine[C]	0	--	--	3.3E+01	6.0E+01	--	--	3.3E+01	6.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**3.3E+01**	**6.0E+01**
N-Nitrosodi-n-propylamine[C]	0	--	--	5.0E-02	5.1E+00	--	--	5.0E-02	5.1E+00	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E-02**	**5.1E+00**
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	--	--	--	--	--	--	--	--	--	--	**2.8E+01**	**6.6E+00**	**--**	**--**
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	--	--	--	--	--	--	--	--	**6.5E-02**	**1.3E-02**	**--**	**--**
PCB Total[C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.4E-02	6.4E-04	6.4E-04	--	--	--	--	--	--	--	--	**--**	**1.4E-02**	**6.4E-04**	**6.4E-04**
Pentachlorophenol [C]	0	2.6E+01	2.0E+01	2.7E+00	3.0E+01	2.6E+01	2.0E+01	2.7E+00	3.0E+01	--	--	--	--	--	--	--	--	**2.6E+01**	**2.0E+01**	**2.7E+00**	**3.0E+01**
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	1.0E+04	8.6E+05	--	--	--	--	--	--	--	--	**--**	**--**	**1.0E+04**	**8.6E+05**
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	8.3E+02	4.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**8.3E+02**	**4.0E+03**
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**	**--**
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	1.5E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**1.5E+01**	**--**
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**4.0E+00**	**4.0E+00**
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	5.0E+00	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+00**	**--**
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	3.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**3.0E+01**	**--**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	2.0E+01	5.0E+00	1.7E+02	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**1.7E+02**	**4.2E+03**
Silver	0	1.0E+00	--	--	--	1.0E+00	--	--	--	--	--	--	--	--	--	--	--	**1.0E+00**	**--**	**--**	**--**
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+05**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	1.7E+00	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+00**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	6.9E+00	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**6.9E+00**	**3.3E+01**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	2.4E-01	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**2.4E-01**	**4.7E-01**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	5.1E+02	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**5.1E+02**	**6.0E+03**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+05**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	7.3E-01	2.0E-04	2.8E-03	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**2.8E-03**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	--	--	4.6E-01	7.2E-02	--	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	3.5E+01	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**3.5E+01**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	5.9E+00	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**5.9E+00**	**1.6E+02**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	2.5E+01	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+01**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	1.4E+01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.4E+01**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+01**	**--**
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	2.5E-01	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E-01**	**2.4E+01**
Zinc	0	6.5E+01	6.6E+01	7.4E+03	2.6E+04	6.5E+01	6.6E+01	7.4E+03	2.6E+04	--	--	--	--	--	--	--	--	**6.5E+01**	**6.6E+01**	**7.4E+03**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	5.6E+00
Arsenic	1.0E+01
Barium	2.0E+03
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	3.0E+02
Lead	3.4E+00
Manganese	5.0E+01
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Raspberry Falls STP Permit No.: VA0088196

Receiving Stream: UT Limestone Branch Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	y	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD
Annual Average =	n/a	MGD

Mixing Information

Annual - 1Q10 Mix =	100	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information

Mean Hardness (as CaCO3) =	125	mg/L
90% Temp (Annual) =	25	deg C
90% Temp (Wet season) =	20	deg C
90% Maximum pH =	7.5	SU
10% Maximum pH =		SU
Discharge Flow =	0.06	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	1.2E+03	2.7E+03	--	--	1.2E+03	2.7E+03	--	--	--	--	--	--	--	--	--	--	1.2E+03	2.7E+0
Acrolein	0	--	--	3.2E+02	7.8E+02	--	--	3.2E+02	7.8E+02	--	--	--	--	--	--	--	--	--	--	3.2E+02	7.8E+0
Acrylonitrile [C]	0	--	--	5.9E-01	6.6E+00	--	--	5.9E-01	6.6E+00	--	--	--	--	--	--	--	--	--	--	5.9E-01	6.6E+0
Aldrin [C]	0	3.0E+00	--	1.3E-03	1.4E-03	3.0E+00	--	1.3E-03	1.4E-03	--	--	--	--	--	--	--	--	3.0E+00	--	1.3E-03	1.4E-0
Ammonia-N (mg/l) (Yearly)	0	1.99E+01	2.22E+00	--	--	2.0E+01	2.2E+00	--	--	--	--	--	--	--	--	--	--	2.0E+01	2.2E+00	--	--
Ammonia-N (mg/l) (High Flow)	0	1.99E+01	3.06E+00	--	--	2.0E+01	3.1E+00	--	--	--	--	--	--	--	--	--	--	2.0E+01	3.1E+00	--	--
Anthracene	0	--	--	9.6E+03	1.1E+05	--	--	9.6E+03	1.1E+05	--	--	--	--	--	--	--	--	--	--	9.6E+03	1.1E+0
Antimony	0	--	--	1.4E+01	4.3E+03	--	--	1.4E+01	4.3E+03	--	--	--	--	--	--	--	--	--	--	1.4E+01	4.3E+0
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.4E+02	1.5E+02	1.0E+01	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	1.0E+01	--
Barium	0	--	--	2.0E+03	--	--	--	2.0E+03	--	--	--	--	--	--	--	--	--	--	--	2.0E+03	--
Benzene [C]	0	--	--	1.2E+01	7.1E+02	--	--	1.2E+01	7.1E+02	--	--	--	--	--	--	--	--	--	--	1.2E+01	7.1E+0
Benzidine [C]	0	--	--	1.2E-03	5.4E-03	--	--	1.2E-03	5.4E-03	--	--	--	--	--	--	--	--	--	--	1.2E-03	5
Benzo (a) anthracene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9
Benzo (b) fluoranthene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Benzo (k) fluoranthene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Benzo (a) pyrene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Bis2-Chloroethyl Ether	0	--	--	3.1E-01	1.4E+01	--	--	3.1E-01	1.4E+01	--	--	--	--	--	--	--	--	--	--	3.1E-01	1.4E+0
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	1.7E+05	--	--	1.4E+03	1.7E+05	--	--	--	--	--	--	--	--	--	--	1.4E+03	1.7E+0
Bromoform [C]	0	--	--	4.4E+01	3.6E+03	--	--	4.4E+01	3.6E+03	--	--	--	--	--	--	--	--	--	--	4.4E+01	3.6E+0
Butylbenzylphthalate	0	--	--	3.0E+03	5.2E+03	--	--	3.0E+03	5.2E+03	--	--	--	--	--	--	--	--	--	--	3.0E+03	5.2E+0
Cadmium	0	5.0E+00	1.4E+00	5.0E+00	--	5.0E+00	1.4E+00	5.0E+00	--	--	--	--	--	--	--	--	--	5.0E+00	1.4E+00	5.0E+00	--
Carbon Tetrachloride [C]	0	--	--	2.5E+00	4.4E+01	--	--	2.5E+00	4.4E+01	--	--	--	--	--	--	--	--	--	--	2.5E+00	4.4E+0
Chlordane [C]	0	2.4E+00	4.3E-03	2.1E-02	2.2E-02	2.4E+00	4.3E-03	2.1E-02	2.2E-02	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	2.1E-02	2.2E-02
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	8.6E+05	2.3E+05	2.5E+05	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	2.5E+05	--
TRC	0	1.9E+01	1.1E+01	--	--	1.9E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	--	--
Chlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	6.8E+02	2.1E+04	--	--	--	--	--	--	--	--	--	--	6.8E+02	2.1E+0

Attachment 8

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane [C]	0	--	--	4.1E+00	3.4E+02	--	--	4.1E+00	3.4E+02	--	--	--	--	--	--	--	--	--	--	4.1E+00	3.4E+0
Chloroform [C]	0	--	--	3.5E+02	2.9E+04	--	--	3.5E+02	2.9E+04	--	--	--	--	--	--	--	--	--	--	3.5E+02	2.9E+0
2-Chloronaphthalene	0	--	--	1.7E+03	4.3E+03	--	--	1.7E+03	4.3E+03	--	--	--	--	--	--	--	--	--	--	1.7E+03	4.3E+0
2-Chlorophenol	0	--	--	1.2E+02	4.0E+02	--	--	1.2E+02	4.0E+02	--	--	--	--	--	--	--	--	--	--	1.2E+02	4.0E+0
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.3E-02	4.1E-02	--	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	--	--
Chromium III	0	6.8E+02	8.9E+01	--	--	6.8E+02	8.9E+01	--	--	--	--	--	--	--	--	--	--	6.8E+02	8.9E+01	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.6E+01	1.1E+01	--	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
Chrysene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Copper	0	1.7E+01	1.1E+01	1.3E+03	--	1.7E+01	1.1E+01	1.3E+03	--	--	--	--	--	--	--	--	--	1.7E+01	1.1E+01	1.3E+03	--
Cyanide	0	2.2E+01	5.2E+00	7.0E+02	2.2E+05	2.2E+01	5.2E+00	7.0E+02	2.2E+05	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	7.0E+02	2.2E+0
DDD [C]	0	--	--	8.3E-03	8.4E-03	--	--	8.3E-03	8.4E-03	--	--	--	--	--	--	--	--	--	--	8.3E-03	8.4E-0
DDE [C]	0	--	--	5.9E-03	5.9E-03	--	--	5.9E-03	5.9E-03	--	--	--	--	--	--	--	--	--	--	5.9E-03	5.9E-0
DDT [C]	0	1.1E+00	1.0E-03	5.9E-03	5.9E-03	1.1E+00	1.0E-03	5.9E-03	5.9E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	5.9E-03	5.9
Demeton	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	
Dibenz(a,h)anthracene [C]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Dibutyl phthalate	0	--	--	2.7E+03	1.2E+04	--	--	2.7E+03	1.2E+04	--	--	--	--	--	--	--	--	--	--	2.7E+03	1.2E+0
Dichloromethane (Methylene Chloride) [C]	0	--	--	4.7E+01	1.6E+04	--	--	4.7E+01	1.6E+04	--	--	--	--	--	--	--	--	--	--	4.7E+01	1.6E+0
1,2-Dichlorobenzene	0	--	--	2.7E+03	1.7E+04	--	--	2.7E+03	1.7E+04	--	--	--	--	--	--	--	--	--	--	2.7E+03	1.7E+0
1,3-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	4.0E+02	2.6E+03	--	--	--	--	--	--	--	--	--	--	4.0E+02	2.6E+0
1,4-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	4.0E+02	2.6E+03	--	--	--	--	--	--	--	--	--	--	4.0E+02	2.6E+0
3,3-Dichlorobenzidine [C]	0	--	--	4.0E-01	7.7E-01	--	--	4.0E-01	7.7E-01	--	--	--	--	--	--	--	--	--	--	4.0E-01	7.7E-0
Dichlorobromomethane [C]	0	--	--	5.6E+00	4.6E+02	--	--	5.6E+00	4.6E+02	--	--	--	--	--	--	--	--	--	--	5.6E+00	4.6E+0
1,2-Dichloroethane [C]	0	--	--	3.8E+00	9.9E+02	--	--	3.8E+00	9.9E+02	--	--	--	--	--	--	--	--	--	--	3.8E+00	9.9E+0
1,1-Dichloroethylene	0	--	--	3.1E+02	1.7E+04	--	--	3.1E+02	1.7E+04	--	--	--	--	--	--	--	--	--	--	3.1E+02	1.7E+0
1,2-trans-dichloroethylene	0	--	--	7.0E+02	1.4E+05	--	--	7.0E+02	1.4E+05	--	--	--	--	--	--	--	--	--	--	7.0E+02	1.4E+0
2,4-Dichlorophenol	0	--	--	9.3E+01	7.9E+02	--	--	9.3E+01	7.9E+02	--	--	--	--	--	--	--	--	--	--	9.3E+01	7.9E+0
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	1.0E+02	--	--	--	--	--	--	--	--	--	--	--	1.0E+02	--
1,2-Dichloropropane [C]	0	--	--	5.2E+00	3.9E+02	--	--	5.2E+00	3.9E+02	--	--	--	--	--	--	--	--	--	--	5.2E+00	3.9E+0
1,3-Dichloropropene	0	--	--	1.0E+01	1.7E+03	--	--	1.0E+01	1.7E+03	--	--	--	--	--	--	--	--	--	--	1.0E+01	1.7E+0
Dieldrin [C]	0	2.4E-01	5.6E-02	1.4E-03	1.4E-03	2.4E-01	5.6E-02	1.4E-03	1.4E-03	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	1.4E-03	1.4
Diethyl Phthalate	0	--	--	2.3E+04	1.2E+05	--	--	2.3E+04	1.2E+05	--	--	--	--	--	--	--	--	--	--	2.3E+04	1..
Di-2-Ethylhexyl Phthalate [C]	0	--	--	1.8E+01	5.9E+01	--	--	1.8E+01	5.9E+01	--	--	--	--	--	--	--	--	--	--	1.8E+01	5.9E+0
2,4-Dimethylphenol	0	--	--	5.4E+02	2.3E+03	--	--	5.4E+02	2.3E+03	--	--	--	--	--	--	--	--	--	--	5.4E+02	2.3E+0
Dimethyl Phthalate	0	--	--	3.1E+05	2.9E+06	--	--	3.1E+05	2.9E+06	--	--	--	--	--	--	--	--	--	--	3.1E+05	2.9E+0
Di-n-Butyl Phthalate	0	--	--	2.7E+03	1.2E+04	--	--	2.7E+03	1.2E+04	--	--	--	--	--	--	--	--	--	--	2.7E+03	1.2E+0
2,4 Dinitrophenol	0	--	--	7.0E+01	1.4E+04	--	--	7.0E+01	1.4E+04	--	--	--	--	--	--	--	--	--	--	7.0E+01	1.4E+0
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	7.65E+02	--	--	1.3E+01	7.7E+02	--	--	--	--	--	--	--	--	--	--	1.3E+01	7.7E+0
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	9.1E+01	--	--	1.1E+00	9.1E+01	--	--	--	--	--	--	--	--	--	--	1.1E+00	9.1E+0
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	1.2E-06	--	--	1.2E-06	1.2E-06	--	--	--	--	--	--	--	--	--	--	1.2E-06	1.2E-0
1 2-Diphenylhydrazine [C]	0	--	--	4.0E-01	5.4E+00	--	--	4.0E-01	5.4E+00	--	--	--	--	--	--	--	--	--	--	4.0E-01	5.4E+0
Alpha-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.2E-01	5.6E-02	1.1E+02	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	1.1E+02	2.4E+0
Beta-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.2E-01	5.6E-02	1.1E+02	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	1.1E+02	2.4E+0
Endosulfan Sulfate	0	--	--	1.1E+02	2.4E+02	--	--	1.1E+02	2.4E+02	--	--	--	--	--	--	--	--	--	--	1.1E+02	2.4E+0
Endrin	0	8.6E-02	3.6E-02	7.6E-01	8.1E-01	8.6E-02	3.6E-02	7.6E-01	8.1E-01	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	7.6E-01	8.1E-01
Endrin Aldehyde	0	--	--	7.6E-01	8.1E-01	--	--	7.6E-01	8.1E-01	--	--	--	--	--	--	--	--	--	--	7.6E-01	8.1E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	3.1E+03	2.9E+04	--	--	3.1E+03	2.9E+04	--	--	--	--	--	--	--	--	--	--	3.1E+03	2.9E+0
Fluoranthene	0	--	--	3.0E+02	3.7E+02	--	--	3.0E+02	3.7E+02	--	--	--	--	--	--	--	--	--	--	3.0E+02	3.7E+0
Fluorene	0	--	--	1.3E+03	1.4E+04	--	--	1.3E+03	1.4E+04	--	--	--	--	--	--	--	--	--	--	1.3E+03	1.4E+0
Foaming Agents	0	--	--	5.0E+02	--	--	--	5.0E+02	--	--	--	--	--	--	--	--	--	--	--	5.0E+02	--
Guthion	0	--	1.0E-02	--	--	--	1.0E-02	--	--	--	--	--	--	--	--	--	--	--	1.0E-02	--	--
Heptachlor [c]	0	5.2E-01	3.8E-03	2.1E-03	2.1E-03	5.2E-01	3.8E-03	2.1E-03	2.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	2.1E-03	2.1E-0
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	1.0E-03	1.1E-03	5.2E-01	3.8E-03	1.0E-03	1.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	1.0E-03	1.1E-0
Hexachlorobenzene[c]	0	--	--	7.5E-03	7.7E-03	--	--	7.5E-03	7.7E-03	--	--	--	--	--	--	--	--	--	--	7.5E-03	7.7E-0
Hexachlorobutadiene[c]	0	--	--	4.4E+00	5.0E+02	--	--	4.4E+00	5.0E+02	--	--	--	--	--	--	--	--	--	--	4.4E+00	5.0E+0
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	3.9E-02	1.3E-01	--	--	3.9E-02	1.3E-01	--	--	--	--	--	--	--	--	--	--	3.9E-02	1.3E-0
Hexachlorocyclohexane Beta-BHC[c]	0	--	--	1.4E-01	4.6E-01	--	--	1.4E-01	4.6E-01	--	--	--	--	--	--	--	--	--	--	1.4E-01	4.6E-0
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	--	1.9E-01	6.3E-01	9.5E-01	--	1.9E-01	6.3E-01	--	--	--	--	--	--	--	--	9.5E-01	--	1.9E-01	6.3E-
Hexachlorocyclopentadiene	0	--	--	2.4E+02	1.7E+04	--	--	2.4E+02	1.7E+04	--	--	--	--	--	--	--	--	--	--	2.4E+02	1.7E-
Hexachloroethane[c]	0	--	--	1.9E+01	8.9E+01	--	--	1.9E+01	8.9E+01	--	--	--	--	--	--	--	--	--	--	1.9E+01	8.9E+0
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	2.0E+00	--	--	--	--	--	--	--	--	--	--	--	2.0E+00	--	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	--	--	--	--	--	--	--	--	4.4E-02	4.9E-0
Iron	0	--	--	3.0E+02	--	--	--	3.0E+02	--	--	--	--	--	--	--	--	--	--	--	3.0E+02	--
Isophorone[c]	0	--	--	3.6E+02	2.6E+04	--	--	3.6E+02	2.6E+04	--	--	--	--	--	--	--	--	--	--	3.6E+02	2.6E+0
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Lead	0	1.6E+02	1.8E+01	1.5E+01	--	1.6E+02	1.8E+01	1.5E+01	--	--	--	--	--	--	--	--	--	1.6E+02	1.8E+01	1.5E+01	--
Malathion	0	--	1.0E-01	--	--	--	1.0E-01	--	--	--	--	--	--	--	--	--	--	--	1.0E-01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	--	--	5.0E+01	--
Mercury	0	1.4E+00	7.7E-01	5.0E-02	5.1E-02	1.4E+00	7.7E-01	5.0E-02	5.1E-02	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	5.0E-02	5.1E-0
Methyl Bromide	0	--	--	4.8E+01	4.0E+03	--	--	4.8E+01	4.0E+03	--	--	--	--	--	--	--	--	--	--	4.8E+01	4.0E+0
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	3.0E-02	1.0E+02	--	--	--	--	--	--	--	--	--	--	3.0E-02	1.0E+02	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	--	--	--	--	--	--	--	--	0.0E+00	--	--
Monochlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	6.8E+02	2.1E+04	--	--	--	--	--	--	--	--	--	--	6.8E+02	2.1E+0
Nickel	0	2.2E+02	2.4E+01	6.1E+02	4.6E+03	2.2E+02	2.4E+01	6.1E+02	4.6E+03	--	--	--	--	--	--	--	--	2.2E+02	2.4E+01	6.1E+02	4.6E+0
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	1.0E+04	--	--	--	--	--	--	--	--	--	--	--	1.0E+04	--
Nitrobenzene	0	--	--	1.7E+01	1.9E+03	--	--	1.7E+01	1.9E+03	--	--	--	--	--	--	--	--	--	--	1.7E+01	1
N-Nitrosodimethylamine[c]	0	--	--	6.9E-03	8.1E+01	--	--	6.9E-03	8.1E+01	--	--	--	--	--	--	--	--	--	--	6.9E-03	8.1
N-Nitrosodiphenylamine[c]	0	--	--	5.0E+01	1.6E+02	--	--	5.0E+01	1.6E+02	--	--	--	--	--	--	--	--	--	--	5.0E+01	1.6E+0
N-Nitrosodi-n-propylamine[c]	0	--	--	5.0E-02	1.4E+01	--	--	5.0E-02	1.4E+01	--	--	--	--	--	--	--	--	--	--	5.0E-02	1.4E+0
Parathion	0	6.5E-02	1.3E-02	--	--	6.5E-02	1.3E-02	--	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	--	--
PCB-1016	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1221	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1232	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1242	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1248	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1254	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB-1260	0	--	1.4E-02	--	--	--	1.4E-02	--	--	--	--	--	--	--	--	--	--	--	1.4E-02	--	--
PCB Total[c]	0	--	--	1.7E-03	1.7E-03	--	--	1.7E-03	1.7E-03	--	--	--	--	--	--	--	--	--	--	1.7E-03	1.7E-03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	2.8E+00	8.2E+01	7.7E-03	5.9E-03	2.8E+00	8.2E+01	--	--	--	--	--	--	--	--	**7.7E-03**	**5.9E-03**	**2.8E+00**	**8.2E+0**
Phenol	0	--	--	2.1E+04	4.6E+06	--	--	2.1E+04	4.6E+06	--	--	--	--	--	--	--	--	**--**	**--**	**2.1E+04**	**4.6E+0**
Pyrene	0	--	--	9.6E+02	1.1E+04	--	--	9.6E+02	1.1E+04	--	--	--	--	--	--	--	--	**--**	**--**	**9.6E+02**	**1.1E+0**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**	**--**
Gross Alpha Activity	0	--	--	1.5E+01	1.5E+01	--	--	1.5E+01	1.5E+01	--	--	--	--	--	--	--	--	**--**	**--**	**1.5E+01**	**1.5E+0**
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**4.0E+00**	**4.0E+0**
Strontium-90	0	--	--	8.0E+00	8.0E+00	--	--	8.0E+00	8.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**8.0E+00**	**8.0E+0**
Tritium	0	--	--	2.0E+04	2.0E+04	--	--	2.0E+04	2.0E+04	--	--	--	--	--	--	--	--	**--**	**--**	**2.0E+04**	**2.0E+0**
Selenium	0	2.0E+01	5.0E+00	1.7E+02	1.1E+04	2.0E+01	5.0E+00	1.7E+02	1.1E+04	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**1.7E+02**	**1.1E+0**
Silver	0	5.1E+00	--	--	--	5.1E+00	--	--	--	--	--	--	--	--	--	--	--	**5.1E+00**	**--**	**--**	**--**
Sulfate	0	--	--	2.5E+05	--	--	--	2.5E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**2.5E+05**	**--**
1,1,2,2-Tetrachloroethane [C]	0	--	--	1.7E+00	1.1E+02	--	--	1.7E+00	1.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+00**	**1.1E+0**
Tetrachloroethylene [C]	0	--	--	8.0E+00	8.9E+01	--	--	8.0E+00	8.9E+01	--	--	--	--	--	--	--	--	**--**	**--**	**8.0E+00**	**8.9E+0**
Thallium	0	--	--	1.7E+00	6.3E+00	--	--	1.7E+00	6.3E+00	--	--	--	--	--	--	--	--	**--**	**--**	**1.7E+00**	**6.**
Toluene	0	--	--	6.8E+03	2.0E+05	--	--	6.8E+03	2.0E+05	--	--	--	--	--	--	--	--	**--**	**--**	**6.8E+03**	**2.0E+0**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	5.0E+05	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+05**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	7.3E-03	7.5E-03	7.3E-01	2.0E-04	7.3E-03	7.5E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**7.3E-03**	**7.5E-0**
Tributyltin	0	4.6E-01	6.3E-02	--	--	4.6E-01	6.3E-02	--	--	--	--	--	--	--	--	--	--	**4.6E-01**	**6.3E-02**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	2.6E+02	9.4E+02	--	--	2.6E+02	9.4E+02	--	--	--	--	--	--	--	--	**--**	**--**	**2.6E+02**	**9.4E+0**
1,1,2-Trichloroethane [C]	0	--	--	6.0E+00	4.2E+02	--	--	6.0E+00	4.2E+02	--	--	--	--	--	--	--	--	**--**	**--**	**6.0E+00**	**4.2E+0**
Trichloroethylene [C]	0	--	--	2.7E+01	8.1E+02	--	--	2.7E+01	8.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**2.7E+01**	**8.1E+0**
2,4,6-Trichlorophenol [C]	0	--	--	2.1E+01	6.5E+01	--	--	2.1E+01	6.5E+01	--	--	--	--	--	--	--	--	**--**	**--**	**2.1E+01**	**6.5E+0**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	5.0E+01	--	--	--	--	--	--	--	--	--	**--**	**--**	**5.0E+01**	**--**
Vinyl Chloride [C]	0	--	--	2.3E-01	6.1E+01	--	--	2.3E-01	6.1E+01	--	--	--	--	--	--	--	--	**--**	**--**	**2.3E-01**	**6.1E+0**
Zinc	0	1.4E+02	1.4E+02	9.1E+03	6.9E+04	1.4E+02	1.4E+02	9.1E+03	6.9E+04	--	--	--	--	--	--	--	--	**1.4E+02**	**1.4E+02**	**9.1E+03**	**6.9E+0**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	1.4E+01
Arsenic	1.0E+01
Barium	2.0E+03
Cadmium	8.1E-01
Chromium III	5.3E+01
Chromium VI	6.4E+00
Copper	6.5E+00
Iron	3.0E+02
Lead	1.1E+01
Manganese	5.0E+01
Mercury	5.0E-02
Nickel	1.5E+01
Selenium	3.0E+00
Silver	2.0E+00
Zinc	5.7E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to LIMESTONE BRANCH.

File Information

File Name:	C:\Documents and Settings\ddfrasier\Desktop\Raspberry Falls\Raspberry F
Date Modified:	March 21, 2011

Water Quality Standards Information

Stream Name:	LIMESTONE BRANCH
River Basin:	Potomac/Shenandoah Rivers Basin
Section:	8
Class:	III - Nontidal Waters (Coastal and Piedmont)
Special Standards:	PWS

Background Flow Information

Gauge Used:	01643590
Gauge Drainage Area:	7.88 Sq.Mi.
Gauge 7Q10 Flow:	0.56 MGD
Headwater Drainage Area:	1.7 Sq.Mi.
Headwater 7Q10 Flow:	0.1208122 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	7.106599E-02 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	25 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	7.433403 mg/l

Model Segmentation

Number of Segments:	1
Model Start Elevation:	260 ft above MSL
Model End Elevation:	231 ft above MSL

Attachment 9

REGIONAL MODELING SYSTEM VERSION 4.0

Model Input File for the Discharge to LIMESTONE BRANCH.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	RASPBERRY FALLS WATER RECLAMATION FACILITY
VPDES Permit No.:	

Discharger Flow Information

Flow:	0.165 MGD
cBOD5:	10 mg/l
TKN:	3 mg/l
D.O.:	7 mg/l
Temperature:	25 Degrees C

Geographic Information

Segment Length:	1 miles
Upstream Drainage Area:	1.7 Sq.Mi.
Downstream Drainage Area:	0 Sq.Mi.
Upstream Elevation:	260 Ft.
Downstream Elevation:	231 Ft.

Hydraulic Information

Segment Width:	3.5 Ft.
Segment Depth:	0.5 Ft.
Segment Velocity:	0.15 Ft./Sec.
Segment Flow:	0.286 MGD
Incremental Flow:	-0.121 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Wide Shallow Arc
Character:	Moderately Meandering
Pool and Riffle:	Yes
Percent Pools:	60
Percent Riffles:	40
Pool Depth:	0.8 Ft.
Riffle Depth:	0.1 Ft.
Bottom Type:	Small Rock
Sludge:	None
Plants:	Few
Algae:	On Entire Bottom

"Model Run For C:\Documents and Settings\ddfrasier\Desktop\Raspberry Falls\Raspberry Falls.mod On 3/21/2011 1:23:00 PM"

"Model is for LIMESTONE BRANCH."
"Model starts at the RASPBERRY FALLS WATER RECLAMATION FACILITY discharge."

"Background Data"

"7Q10"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.1208,	2,	0,	7.433,	25

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.165,	10,	3,	,7,	25

"Hydraulic Information for Segment 1"

"Length"	"Width"	"Depth"	"Velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
1,	3.5,	.5,	.15

"Initial Mix Values for Segment 1"

"Flow"	"DO"	"cBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.2858,	7.183,	16.546,	0,	8.264,	25

"Rate Constants for Segment 1. - (All units Per Day)"

"k1",	"k1@T",	"k2",	"k2@T",	"kn",	"kn@T",	"BD",	"BD@T"
.5,	.629,	17.4,	19.591,	.15,	.22,	0,	0

"Output for Segment 1"
"Segment starts at RASPBERRY FALLS WATER RECLAMATION FACILITY"

"Total"	"Segm."			
"Dist."	"Dist."	"DO"	"cBOD"	"nBOD"
"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"
0,	0,	7.183,	16.546,	0
.1,	.1,	7.437,	16.127,	0
.2,	.2,	7.437,	15.719,	0
.3,	.3,	7.437,	15.321,	0
.4,	.4,	7.437,	14.933,	0
.5,	.5,	7.437,	14.555,	0
.6,	.6,	7.437,	14.187,	0
.7,	.7,	7.437,	13.828,	0
.8,	.8,	7.437,	13.478,	0
.9,	.9,	7.437,	13.137,	0
1,	1,	7.437,	12.805,	0

"END OF FILE"

Permit #:VA0088196	Facility:Raspberry Falls Sewage Treatment Plant

Rec'd	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max
10-Mar-2005	PH	NULL	**********	NULL	**********	7.3	6	NULL	**********	8.2	9
11-Apr-2005	PH	NULL	**********	NULL	**********	7.4	6	NULL	**********	8.1	9
11-May-2005	PH	NULL	**********	NULL	**********	7.1	6	NULL	**********	8	9
10-Jun-2005	PH	NULL	**********	NULL	**********	6.9	6	NULL	**********	8	9
11-Jul-2005	PH	NULL	**********	NULL	**********	7	6	NULL	**********	8.1	9
10-Aug-2005	PH	NULL	**********	NULL	**********	6.9	6	NULL	**********	7.9	9
12-Sep-2005	PH	NULL	**********	NULL	**********	7	6	NULL	**********	7.9	9
11-Oct-2005	PH	NULL	**********	NULL	**********	7.5	6	NULL	**********	8.1	9
10-Nov-2005	PH	NULL	**********	NULL	**********	7.3	6	NULL	**********	8.1	9
12-Dec-2005	PH	NULL	**********	NULL	**********	7.1	6	NULL	**********	8.2	9
11-Jan-2006	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.2	9
10-Feb-2006	PH	NULL	**********	NULL	**********	7.7	6	NULL	**********	8.2	9
10-Mar-2006	PH	NULL	**********	NULL	**********	7.6	6	NULL	**********	8.2	9
10-Apr-2006	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.2	9
10-May-2006	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.2	9
12-Jun-2006	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.2	9
10-Jul-2006	PH	NULL	**********	NULL	**********	8	6	NULL	**********	8.3	9
10-Aug-2006	PH	NULL	**********	NULL	**********	8	6	NULL	**********	8.2	9
11-Sep-2006	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.3	9
10-Oct-2006	PH	NULL	**********	NULL	**********	7.2	6	NULL	**********	8.3	9
13-Nov-2006	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.2	9
11-Dec-2006	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.3	9
10-Jan-2007	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.3	9
12-Feb-2007	PH	NULL	**********	NULL	**********	7.5	6	NULL	**********	8.2	9
09-Mar-2007	PH	NULL	**********	NULL	**********	8	6	NULL	**********	8.3	9
10-Apr-2007	PH	NULL	**********	NULL	**********	8	6	NULL	**********	8.2	9
10-May-2007	PH	NULL	**********	NULL	**********	7.4	6	NULL	**********	8.2	9
11-Jun-2007	PH	NULL	**********	NULL	**********	7.7	6	NULL	**********	8.2	9
11-Jul-2007	PH	NULL	**********	NULL	**********	7.3	6	NULL	**********	8.1	9
10-Aug-2007	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.3	9
10-Sep-2007	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.2	9
11-Oct-2007	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.3	9
13-Nov-2007	PH	NULL	**********	NULL	**********	7.7	6	NULL	**********	8.8	9
11-Dec-2007	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.4	9
11-Jan-2008	PH	NULL	**********	NULL	**********	7.7	6	NULL	**********	8.4	9
11-Feb-2008	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.3	9
11-Mar-2008	PH	NULL	**********	NULL	**********	7.9	6	NULL	**********	8.3	9
10-Apr-2008	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.3	9
12-May-2008	PH	NULL	**********	NULL	**********	7.8	6	NULL	**********	8.4	9

Attachment 10

11-Jun-2008	PH	NULL	*********	NULL	*********	7.8	6	NULL	*********	8.4	9
11-Jul-2008	PH	NULL	*********	NULL	*********	7.3	6	NULL	*********	8.2	9
11-Aug-2008	PH	NULL	*********	NULL	*********	7.7	6	NULL	*********	8.3	9
11-Sep-2008	PH	NULL	*********	NULL	*********	7.8	6	NULL	*********	8.2	9
14-Oct-2008	PH	NULL	*********	NULL	*********	7.5	6	NULL	*********	8.1	9
12-Nov-2008	PH	NULL	*********	NULL	*********	7.6	6	NULL	*********	8.1	9
10-Dec-2008	PH	NULL	*********	NULL	*********	7.3	6	NULL	*********	8.2	9
12-Jan-2009	PH	NULL	*********	NULL	*********	7.5	6	NULL	*********	8.4	9
10-Feb-2009	PH	NULL	*********	NULL	*********	7.5	6	NULL	*********	8.2	9
11-Mar-2009	PH	NULL	*********	NULL	*********	6.6	6	NULL	*********	8.3	9
13-Apr-2009	PH	NULL	*********	NULL	*********	7.3	6	NULL	*********	8.7	9
11-May-2009	PH	NULL	*********	NULL	*********	7.9	6	NULL	*********	8.2	9
11-Jun-2009	PH	NULL	*********	NULL	*********	7.9	6	NULL	*********	8.3	9
13-Jul-2009	PH	NULL	*********	NULL	*********	7.9	6	NULL	*********	8.3	9
11-Aug-2009	PH	NULL	*********	NULL	*********	7.7	6	NULL	*********	8.3	9
11-Sep-2009	PH	NULL	*********	NULL	*********	8	6	NULL	*********	8.6	9
13-Oct-2009	PH	NULL	*********	NULL	*********	8	6	NULL	*********	8.4	9
12-Nov-2009	PH	NULL	*********	NULL	*********	7.8	6	NULL	*********	8.4	9
11-Dec-2009	PH	NULL	*********	NULL	*********	7.4	6	NULL	*********	8.3	9
11-Jan-2010	PH	NULL	*********	NULL	*********	8	6	NULL	*********	8.5	9
12-Feb-2010	PH	NULL	*********	NULL	*********	7.6	6	NULL	*********	8.3	9
									90th	8.4	

4/20/2010 2:59:05 PM

Facility = Raspberry Falls WRF @ 0.060 MGD
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 3.9
WLAc = 0.7
Q.L. = 0.2
# samples/mo. = 4
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.41236906539142
Average Weekly limit = 1.41236906539142
Average Monthly LImit = 0.965673058766486

The data are:

9

4/20/2010 2:59:27 PM

Facility = Raspberry Falls WRF @ 0.165 MGD
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 3.9
WLAc = 0.7
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.41236906539142
Average Weekly limit = 1.03306845484481
Average Monthly LImit = 0.769500972032481

The data are:

9

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Loudoun County, Virginia.

PUBLIC COMMENT PERIOD: TBD, 2011 to 5:00 p.m. on TBD, 2011

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER:	Loudoun County Sanitation Authority P.O. Box 4000, Ashburn, VA 20146 VA0088196
NAME AND ADDRESS OF FACILITY:	Raspberry Falls Water Reclamation Facility 16316 Limestone Branch, Leesburg, VA 20176

PROJECT DESCRIPTION: Loudoun County Sanitation Authority has applied for a reissuance of a permit for the public Raspberry Falls Water Reclamation Facility. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.60 million gallons per day into a water body and includes an expansion flow tier of 0.165 million gallons per day. Sludge from the treatment process will be transported to the Broad Run Water Reclamation Facility (VA0091383) for further treatment and final disposal. The facility proposes to release treated sewage in the Limestone Branch, UT, in Loudoun County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, TSS, DO, *E. coli*, TKN, Nitrate+Nitrite, Total Nitrogen and Total Phosphorus.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment or may request electronic copies of the draft permit and fact sheet.

Name: Douglas Frasier
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3873 E-mail: Douglas.Frasier@deq.virginia.gov Fax: (703) 583-3821

TBD

Attachment 13

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Raspberry Falls Water Reclamation Facility
NPDES Permit Number:	VA0088196
Permit Writer Name:	Douglas Frasier
Date:	22 June 2010

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water? **Downstream impairment**		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	**Yes**	**No**	**N/A**
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?	X		
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?	X		
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs

(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

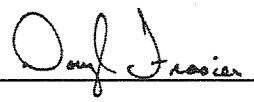
List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance
not a defense	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Douglas Frasier
Title	Water Permit Writer, Senior II
Signature	
Date	22 June 2010